

Work Order ID 158480

158480

Page 1

Thursday, March 23, 2017 1:42:18 PM

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: FWD Crosstube Installation without Step (no hardware)
 Start Date: 3/28/2017 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 4/14/2017 Req'd Qty: 1.00 ***1*** Customer:
 Reference: scheduled/stock

Approvals: Process Plan: **21** Date: **MAR 23 2017** Tooling: Date: Run Start ***NR1***
 QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D119-796-141	H

110	Document Control	0.00							
110									
DC	Memo	0.02							
Doc.Control -USB or Paperwork		Photocopy bluefile and create labels as per PPP D119-796-141 chg 004							

NA DJ

120	Packaging	0.00							
120									
Packaging	Memo	0.02							
Packaging									

M 17-05-30

130	BENDING MACHINE - CROSSTUBES	1.63							
130									
CNC Bend 2	Memo	0.94							
CNC Alpha 160 Bender	Bend tube as per Dwg D119-796-141 using CNC bender program								

M 17-05-31

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Run Start ***NR1***

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC15- Crosstube Dimensional Check	0.00				1			DAS 38 9-89
140									
QC	Memo	0.02							
Quality Control									MAY 31 2017
145		0.00							
145									
Crosstubes	Memo	1.86							
Crosstubes	1- CUT TUBE AT HEIGHT ON FAI SHEET								
	2- VERIFY HEIGHT: 21.625								
	BY QC15 LEVEL INSPECTOR: JW								
	3- DEBURR CUT SURFACE								

DP2 1706-01

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Start Date: 3/28/2017 **Start Qty:** 1.00

*** 1 ***

Cust Item ID:

Required Date: 4/14/2017 **Req'd Qty:** 1.00

*** 1 ***

Customer:

Reference: scheduled/stock

Run Start

NR1

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop

NR2

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID**Tool #****Plan
Code**

**Accept
Qty**

Reject
QtyReject
Number

**Insp.
Stamp**

150

0.70

150

Crosstubes

1.75

Crosstubes

Memo

***** ENSURE PROPER JIG POSITIONING *****

***** ENSURE PROPER JIG POSITIONING *****

1-DRILL TUBE AS PER DWG USING DT10087

2- DRILL RIVET HOLES USING DT8787 FWD

3- DEBURR AND C'SINK RIVET HOLES AS PER DWG

4- FLIP TUBE, REPEAT STEP 2 AND 3

5- SCRIBE PART# AND BATCH# USING VIBRATING STYLUS ON INSIDE OF CUFF AS PER DWG D119-796-141

DR 17-06-05

Work Order ID 158480

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

0.00

160

HandFXtube

Memo

1.54

Hand Finishing Crosstubes

1- INSPECT AND REMOVE ALL MARKS FROM TUBE WITHIN LIMITS
ON DWG D119-796-141

IMMEDIATELY AFTER GRINDING

2- PRESSURE WASH X-TUBE INSIDE AND OUT

3- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.

4- Verify grinding marks By: JWDPZ 17-06-08

175

QC7-Inspect Chemical Conversion Coat

0.00

175

QC

Memo

0.02

Quality Control

JW 17-06-09

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Run Start ***NR1***

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

180

Outsource process - NDT per QSI038 4.1

0.00

180

Outsource2

Memo

120.00

Outsource process - NDT

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Liquid Penetrant Inspection as per QSI 038Or
Issue P/O: 36562 LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

1	JUN 13 2017	DAS 13 9-89
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190

Packaging

0.00

190

Packaging

Memo

0.02

Packaging

Ensure copy of NDT results attached to work order.

IX SP17-10B

200

QC5- Inspect part completeness to step on W/O

0.00

200

QC

Memo

0.02

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for damage & ensure results are as per Dwg D119-796-141

1	JUN 17 2017	DAS 38 9-89
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Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							DAS 41 9-89
230	SprayPaint	1.36				1			
SprayPaint	Memo								JUL 12 2017
Spray Painting	***VERIFY BY <u>DAS</u> BATCH # TO MATCH W/O <u>158480</u> <u>41</u>								
	***VERIFY BY <u>9-89</u> PART # TO MATCH W/O <u>15840</u>								
	MASK SCRIBE B# & P# AND VERIFY								
	1- Prime Inside of tube.								
	2- Install nut plates as per dwg (D2873-043)								
	3- Mask cuffs per note#2.								
	4- Prime exterior of tube per QSI005.								
	Primer Batch: <u>136887</u>								
	Start Time: <u>700</u>								
	Finish Time: <u>900</u>								

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Customer:

Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC14- Inspect Spray Paint

0.00

240

QC

Quality Control

Memo

***VERIFY BY

158480 **DAS**

***VERIFY BY

158480 **DAS****DAS****38****9-89**

0.02

BATCH # TO MATCH W/O

PART # TO MATCH

JUL 17 2017

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1

Cust Item ID:

Required Date: 4/14/2017 Req'd Qty: 1.00

1

Customer:

Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

242

0.00

242

Crosstubes

Crosstubes

Memo

1.08

Assemble as per dwg D119-796-141 and Qsi 015

1- Abrade mating surfaces with Scotch Brite 7447 and clean with Dupont 4105s or equivalent as per dwg.

2- Install D5152-041 with proseal 890 on concave surface, 0.100" MIN thick as per dwg using DT10089 (identified right and left)

****MAINTAIN CLAMPING PRESSURE ON FOR MIN 72HRS****

Proseal Batch: 137495EXP: 1/18

PROSEAL CURE TIME 72 HOURS:

Start: 17-7-16Finish: 17-7-19

3- USE DT10304 PINS TO LOCATE SUPPORTS. Install support and shim using proseal 890 per dwg and clamp in position.

Proseal Batch: 137495EXP: 1/18

PROSEAL CURE TIME 72 HOURS:

Start: 17-7-16Finish: 17-7-19

1

JUL 16 2017

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Customer:

Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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244

QC5- Inspect part completeness to step on W/O

0.00

244

QC

0.02

Quality Control

Memo

VERIFY BY JB BATCH # TO MATCH W/OVERIFY BY JB PART # TO MATCHW/O 158480

<u>1</u>		<u>JB</u>
		<u>17-07-26</u>

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N900040100

Setup Start

NS1

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Cust Item ID:

Required Date: 4/14/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

246

Spray Painting per QSI005 4.2

0.00

246

SprayPaint

Memo

0.33

VERIFY BY DAS BATCH # TO MATCH W/OVERIFY BY 41 PART # TO MATCHW/O 158480

MASK SCRIBE B# & P# AND VERIFY

1- Remove all non-fixed hardware and clean any excess proseal.

2- Scuff tube with Scotch Brite 7447.

3- Mask cuff per note#2.

4- Prime as per dwg and QSI005

Primer Batch: 136887Start Time: 700Finish Time: 800

5- Apply matte clear as per dwg and QSI005

Clear Batch: 137170Start Time: 1100Finish Time: 1200

DAS

41

9-89

JUL 20 2017

Work Order ID 158480

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Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
248	Spray Painting per QSI005 4.2	0.00							DAS 41 9-89
248									
SprayPaint	Memo	0.00							
Spray Painting	***VERIFY BY <u>DAS</u> BATCH # TO MATCH W/O <u>158480</u> ***VERIFY BY <u>41</u> PART # TO MATCH W/O <u>158480</u> <u>9-89</u>								
	MASK SCRIBE B# & P# AND VERIFY								
	1- Mask underside of tube as per dwg. Mask cuff per note#2.								
	2- Scuff tube with Scotch Brite 7447								
	3- Paint outside of crosstube								
	Paint Batch: <u>137852</u>								
	Start Time: <u>700</u>								
	Finish Time: <u>800</u>								

JUL 21 2017

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Start Date: 3/28/2017 Start Qty: 1.00 *1* Cust Item ID:

Required Date: 4/14/2017 Req'd Qty: 1.00 *1* Customer:

Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	QC14- Inspect Spray Paint Crosstubes	0.00							
250									
QC		0.00							
Quality Control	Memo ***VERIFY BY <u>JB</u> BATCH # TO MATCH W/O <u>158480</u> ***VERIFY BY <u>JB</u> PART # TO MATCH W/O <u>158480</u>								<u>JB</u> 17-07-26

Work Order ID 158480

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Cust Item ID:

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Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

252

0.00

252

Crosstubes

Crosstubes

Memo

0.44

1- Re-install non fixed hardware per dwg

Torque all clamps to 80-100 IN-LBS.

2- Apply a filet-seal of proseal 890 around supports.

Allow proseal to dry before inspecting.

Proseal 890 Batch: 137495
EXP: 1/18

DAS

41~~9-89~~

JUL 25 2017

Work Order ID 158480

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
260	QC5- Inspect part completeness to step on W/O	0.00							
260									
QC	Memo	0.02							
Quality Control	***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED AS PER DWG.***								
	***VERIFY BY <u>JB</u> BATCH # TO MATCH W/O								
	***VERIFY BY <u>JB</u> PART # TO MATCH								
	W/O <u>158480</u>								
	MASK SCRIBE B# & P# AND VERIFY								
290		0.00							DAS
290	Packaging								41
Packaging	Memo	0.00							9-89
Packaging	Identify and pack for shipping as per PPP D119-796-141								JUL 16 2017
	On w/o 162492								

Work Order ID 158480

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

300

QC21- Final Inspection - Work Order Release

0.00

300

QC

Memo

0.10

Quality Control

17/7/26 JJ

UM 7/26/17



Picklist Print

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Page 1

Work Order ID: 158480

158480

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 3/28/2017

Required Date: 4/14/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.03 NEW ISSUE DD VERF:JLM IPP
REV:B 14.10.15 AS PER REV.B DD VERF:JLM IPP REV:C
14.11.19 AS PER REV.C DD VERF:JLM IPP REV:D 14.12.12
AS PER REV.pd1 DD VERF:JLM IPP REV:E 15.02.11 AS PER
REV F JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D5305-1		Manufactured	No			242	Each	19.0000	2	2			
D5305-1									**			DAS 41 9-89	JUL 16 2017
Shim													

Location	Loc Qty	Loc Code
LG056	19	
155334	19	

D119-796-141TRN

Manufactured No

D119-796-141TRN

Crosstube Turning Detail

Location	Loc Qty	Loc Code
LG014	6	
149556	1	
153552	1	
153555	1	
154834	1	
154835	1	
154837	1	

D2873-043

Manufactured No

D2873-043

Nut Plate Assembly

Location	Loc Qty	Loc Code
LG050	88	
152401	10	
154806	20	
155504	29	
156196	29	

1705-30

4

DAS
41
9-89

JUL 06 2017

Picklist Print

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Start Date: 3/28/2017

Required Date: 4/14/2017

Start Qty: 1.00

Required Qty: 1.00

D5123-3

Manufactured No

242

Each

410.0000

4

4

DAS

41

9-89

JUL 12 2017

D5123-3

Clamp Cushion

**

Location

Loc Qty

Loc Code

LG052

400

153233

400

4

LG055

10

152482

10

D5124-1

Manufactured No

242

Each

24.0000

2

2

DAS

41

9-89

JUL 12 2017

D5124-1

Fwd Support

**

Location

Loc Qty

Loc Code

LG054

24

152391

7

155857

8

156435

9

2

D5152-041

Manufactured No

242

Each

10.0000

2

2

DAS

41

9-89

JUL 16 2017

D5152-041

Fwd Post Mount Assembly

**

Location

Loc Qty

Loc Code

LG055

10

152470

1

154801

9

2

Picklist Print

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Start Date: 3/28/2017

Required Date: 4/14/2017

Start Qty: 1.00

Required Qty: 1.00

CR3212-4-08

Purchased

No

230

Each

129.0000

16

16

CR3212-4-08

RIVET

DAS
41

9-89 JUL 06 2017

Location

Loc Qty

Loc Code

CCK003

101

m134848

1

m136442

100

LG056

28

m135536

28

16

MS21920-24

Purchased

No

252

Each

61.0000

4

4

MS21920-24

Clamp

DAS
41

9-89 JUL 12 2017

Location

Loc Qty

Loc Code

FG

2

117998

2

LG050

59

m134502

5

m136016

30

m136986

24

3

1

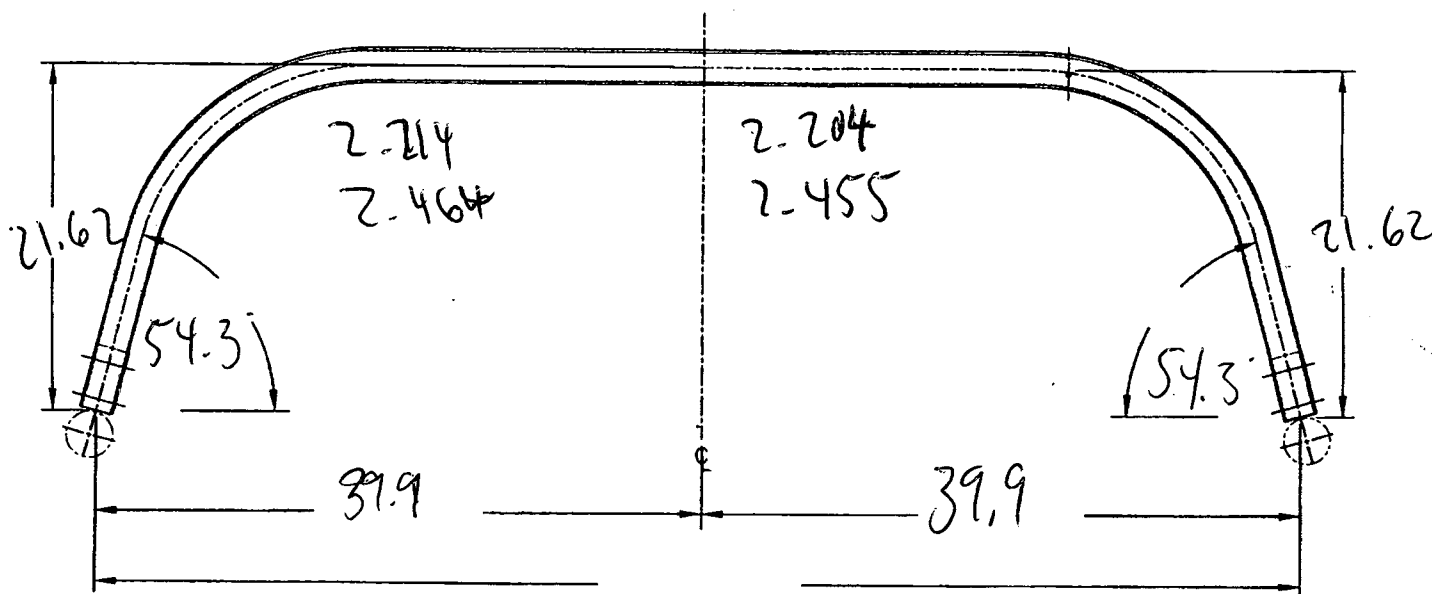
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Shop Packet Print

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DART AEROSPACE LTD	Work Order:	158480
Description: Crosstube Fwd, with Step	Part Number:	D119-796-141
Inspection Dwg: D119-796-141 Rev: H		Page 1 of 1

Required Dimension	Min	Max
Height	21.490	21.750
1/2 Span	39.820	40.080
Angle	54°	57°
Total Span	79.640	80.160
Bending Passes	8	--
Crushing	--	6.8%



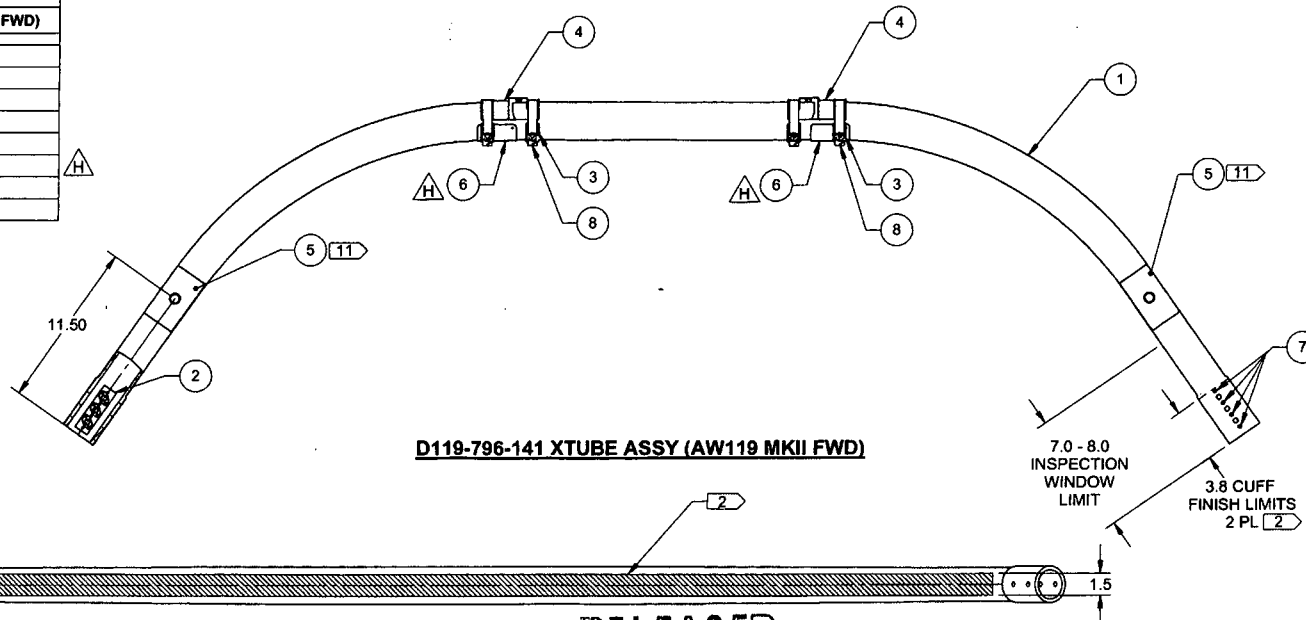
	Side A	Side B
Bending Passes	8	8
Crushing	5.3%	5.4%
Comments		

QC15 Inspection	38
Date	MAY 31 2017

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue	KJ	
B	15.11.12	Dwg Rev updated	KJ	
C	16.01.15	Dwg Rev updated	KJ	

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-141	XTUBE ASSY (AW119 MKII FWD)
1	1	D119-796-141BND	CROSSTUBE, FWD
2	4	D2873-043	RADIUS BLOCK
3	4	D5123-3	CLAMP CUSHION
4	2	D5124-1	FWD SUPPORT
5	2	D5152-041	FWD POST MOUNT ASSY
6	2	D5305-1	SHIM
7	16	CR3212-4-08	RIVET, BLIND CSK
8	4	MS21920-24	CLAMP

SHOP COPY
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ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 158480 MLC
1703-23



D119-796-141 XTUBE ASSY (AW119 MKII FWD)

RELEASED
2015-11-04
EW 15-642

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: APPLY MATTE CLEAR COAT PER QSI 005 4.2
MASK D5124-1 FWD SUPPORTS, D5305-1 SHIMS AS WELL AS UNDERSIDE OF CROSSTUBE AS SHOWN (B3-1, HATCHED AREA),
PAINT OUTSIDE PER DART QSI 005 4.2 AFTER APPLYING CLEAR COAT
DO NOT APPLY FINISH (PAINT OR CLEAR COAT) TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-141" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
- 7) WEIGHT: 18.54 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS.
DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5124-1 FWD SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. APPLY A 0.1 MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5124-1 FWD SUPPORTS AND INSTALL AT AN 8.4° OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL THE MS21920-24 CLAMPS AND D5123-3 CLAMP CUSHIONS WHILE WET.
- 10) TORQUE MS21920 CLAMPS 80 - 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY. THE NUT IS FACING AFT AND HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 11) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5152-041 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. INSTALL D5152-041 WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. LOCATE D5152-041 USING TOOL DT10089.
- 12) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5305-1 SHIM WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. INSTALL D5305-1 SHIM WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. USE ADDITIONAL TEMPORARY MS21920-24 CLAMP TO APPLY CLAMPING PRESSURE FOR 72 HOURS.

H	ADD D5305-1 SHIM, D6024-103 WAS D6005-103, D5124-1 NOW INSTALLED ON PRIMER	AP	15.10.13
G	FINISHING ORDER ADJUSTED, CR3212-4-08 WAS -07, CUFF DIA TOLERANCE INCREASED TO +/- 0.005	AP	15.04.24
F	REMOVED PRIME/ PAINT ON CUFFS, 2.516 WAS 2.500 (C8-5)	AP	15.02.03
E	D5152-041 FWD STEP POST ASSY WAS D5150-1 STEP POST, SCOTCH BRITE 7447 RED WAS 180 GRIT SANDPAPER, ANGLE (B7-2) DIMENSIONED FROM NEW DATUM	DB	15.01.15
D	ADD D5150-1 STEP POST (2X), MOVED INSPECTION WINDOW DETAIL TO SHEET 1, MODIFIED NOTES ON SHT 1 & 3	DB	14.11.25
C	CR3212-4-07 RIVETS WERE CR3212-4-09, 7.5 DEG CUFF ANGLE OFFSET REMOVED (SHT 3), CUFF DIAMETER ON D119-796-141 TRN REDUCED TO 2.500, ADDED INSPECTION WINDOW (B7-3), ADDED SHT 4	AP	14.10.23
B	ADDED D2873-043 RADIUS BLOCK, CR3212-4-09 RIVETS, ADDED SKIDTUBE REFERENCE FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES AND REMOVED REDUNDANT INFORMATION	AP	14.09.02
A	NEW ISSUE	AP	14.08.09
REV.	DESCRIPTION	BY	DATE
DESIGN	AP		
DRAWN	AP		
CHECKED	AJS		
MFG. APPR.	JLM		
APPROVED	WM		
DE APPR.	DS		
DATE	15.10.13		

DART AEROSPACE LTD

HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
D119-796-141

REV. H
SHEET 1 OF 6

TITLE
XTUBE ASSY (AW119 MKII FWD)

SCALE
NTS

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8 7 6 5 4 3 2 1

D5124-1 FWD SUPPORT
D5123-3 CLAMP CUSHION
D5305-1 SHIM
MS21920-24 CLAMP (2 PL)
2 PL
9 10 12

C
SYM

D119-796-141BND
CROSSTUBE BENDING
PLANE, REF

B

D119-796-141BND
CROSSTUBE, FWD

D5152-041 FWD POST MOUNT ASSY
2 PL
11

D2873-043 RADIUS BLOCK
CR3212-4-08 RIVET, BLIND CSK (4 PL)
4 PL

D119-796-141 XTUBE ASSY (AW119 MKII FWD)

D119-796-141BND
CROSSTUBE BENDING
PLANE, REF

D5124-1 FWD SUPPORT
REF

81.6°

DETAIL B
SCALE 2X

D5123-3 CLAMP CUSHION
REF

D5124-1 FWD SUPPORT
REF

MS21920-24 CLAMP
REF

9

10

SECTION A-A
SCALE 2X

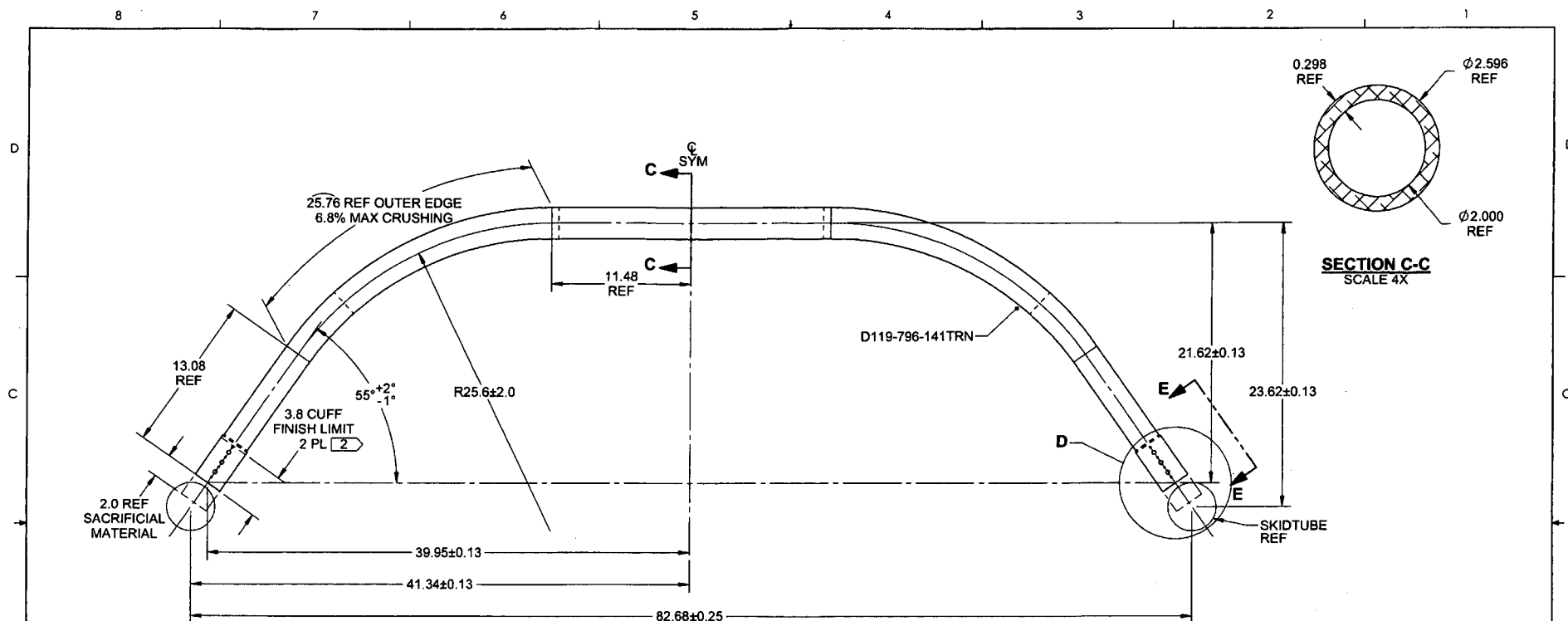
RELEASED
2015-11-04

APPROVED
Q

DESIGN	AP
DRAWN	AP
CHECKED	AJS
MFG. APPR.	JLM
APPROVED	WM
DE APPR.	DS
DATE	15.10.13

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D119-796-141	REV. H SHEET 2 OF 6
TITLE XTUBE ASSY (AW119 MKII FWD)	SCALE NTS
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8 7 6 5 4 3 2 1



D119-796-141BND CROSSTUBE, FWD 9
BENDING AND DRILLING DETAIL

NOTES:

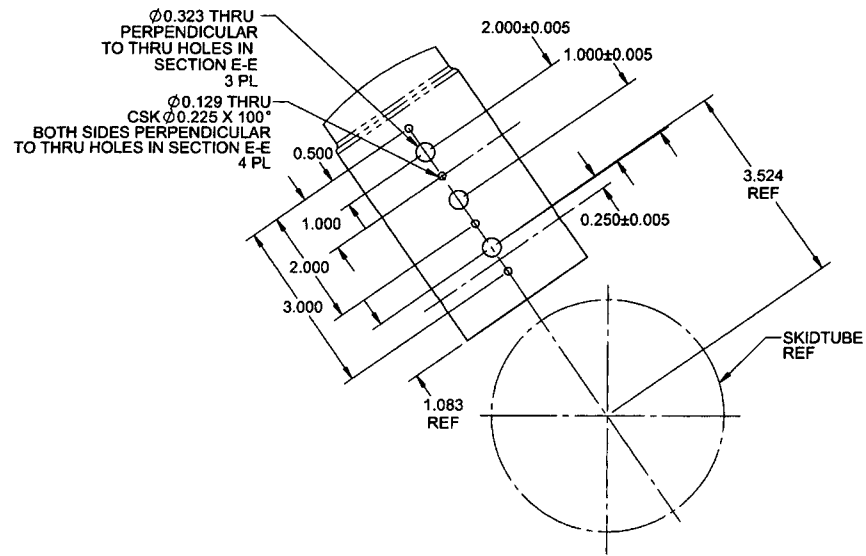
- 1) MATERIAL: MADE FROM D119-796-141TRN
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
DO NOT APPLY PRIMER TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 16.70 lbs
- 8) PART IS SYMMETRICAL ABOUT CENTERLINE
- 9) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6.8% BASED ON OD.
- 10) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

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2015-11-04

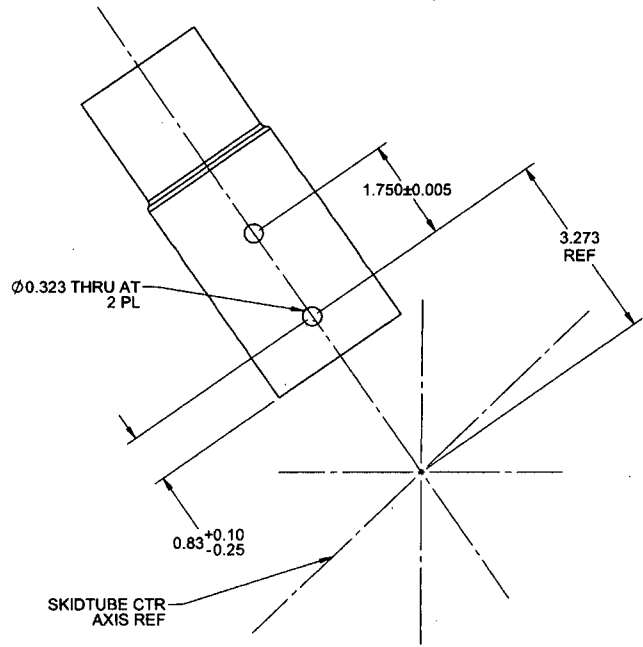
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DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 3 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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8 7 6 5 4 3 2 1



VIEW D
SCALE 4X



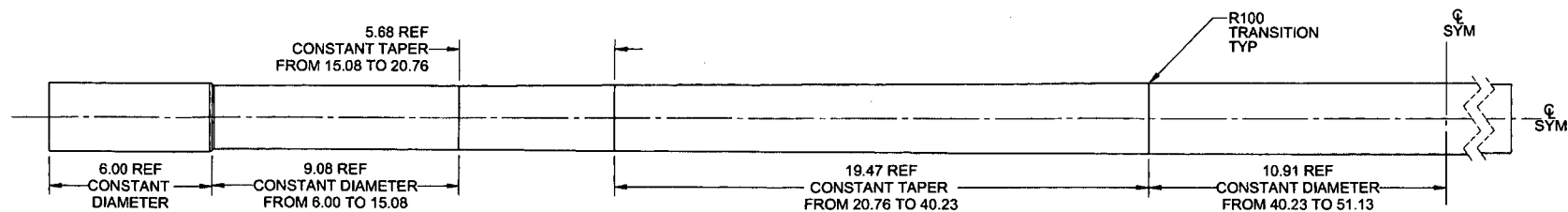
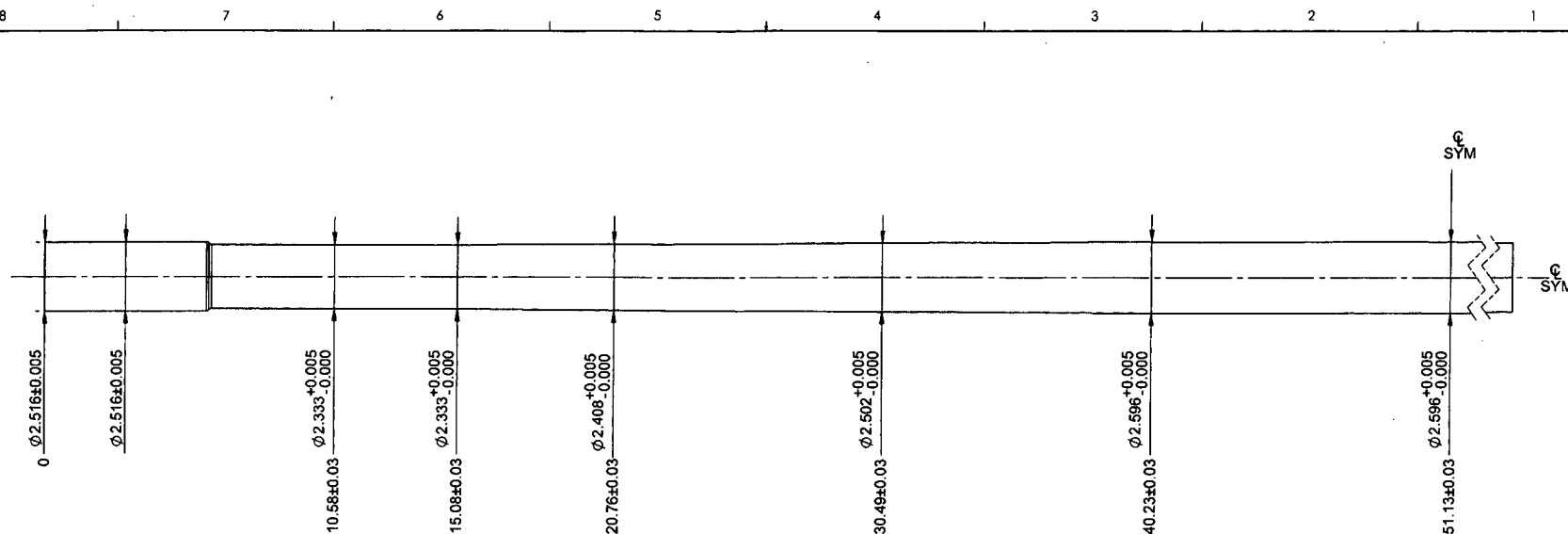
VIEW E-E
SCALE 2X

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2015-11-04

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DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 4 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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8 7 6 5 4 3 2 1



D119-796-141TRN CROSSTUBE, FWD

NOTES:

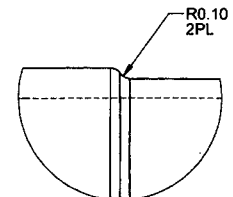
- 1) MATERIAL: MANUFACTURE FROM D6024-103 (PREFERRED) OR D6005-103
FINISHED LENGTH = 102.26 ± 0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 16.70 lbs.
- 8) PART IS SYMMETRICAL ABOUT CENTERLINE

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2015-11-04

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DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 5 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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D119-796-141TRN CROSSTUBE, FWD
 SUPPLEMENTAL VIEW: NOMINAL WALL THICKNESS



DETAIL F
 SCALE 2X

CHAMFER ID
 AS REQUIRED
 FOR TOOLING

0.258 REF
 NOMINAL WALL

0.167 REF
 NOMINAL WALL
 10.58±0.03

0.167 REF
 NOMINAL WALL
 15.08±0.03

0.204 REF
 NOMINAL WALL
 20.76±0.03

0.251 REF
 NOMINAL WALL
 30.49±0.03

0.298 REF
 NOMINAL WALL
 40.23±0.03

0.298 REF
 NOMINAL WALL
 51.13±0.03

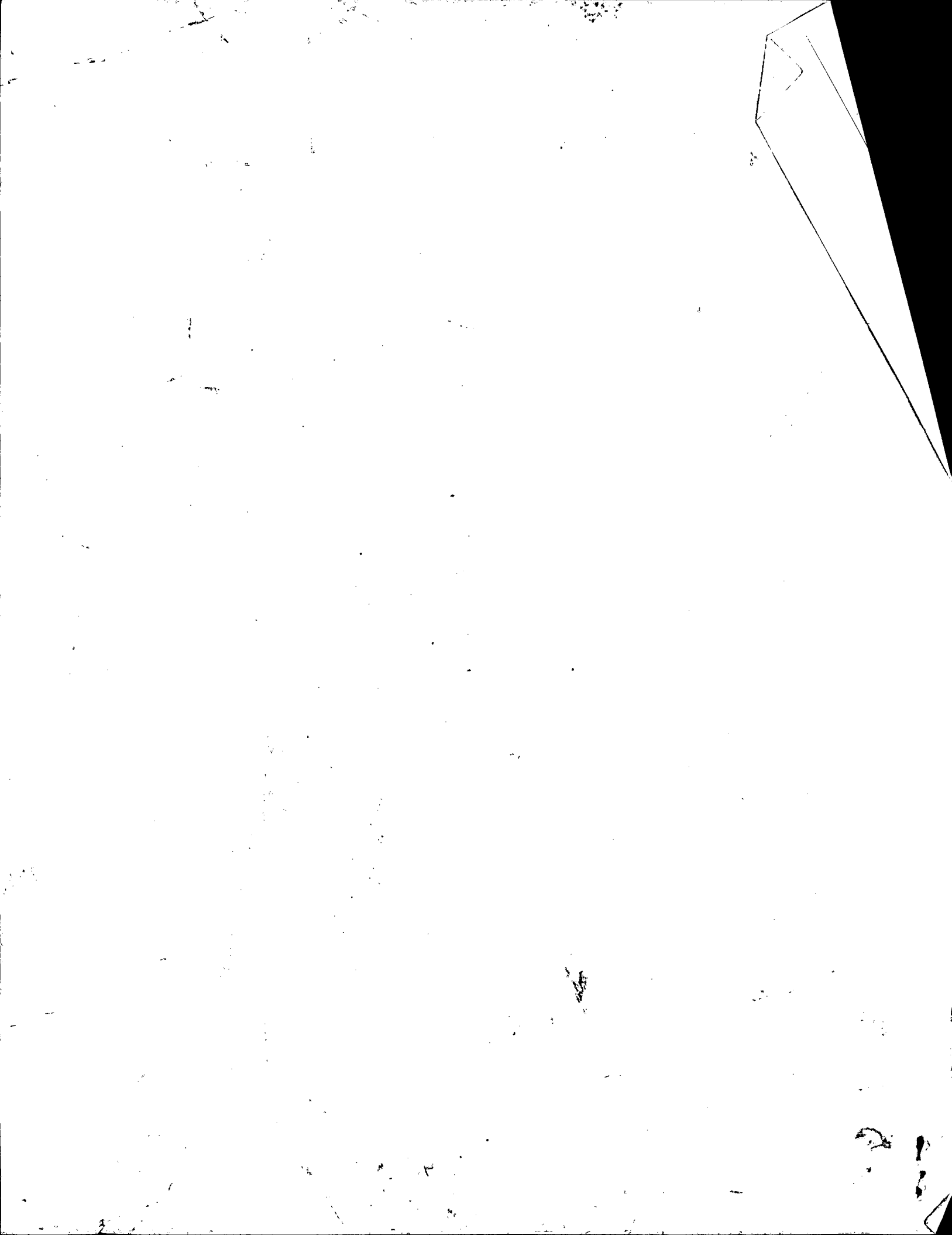
6
 SYM

6
 SYM

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 2015-11-04

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DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 6 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO36567

Purchase Order Date 6/5/2017

PO Print Date 6/13/2017

Page Number 1 of 5

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 905-678-5636

Ship To Contact
Ship To Phone
Ship Via: Delivered
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	71401-45 Procurement Quality Clauses A005 right of entry A012 chemical and physical test report A016 personnel qualification A017 raw material identification (as applicable) A024 process certifications A026 certification of material conformance A041 quality management system A042 dart notification by supplier A043 retention of quality documents	PROCUREMENT QUALITY CLAUSES	6/16/2017 No 6/16/2017		1.00	\$0.00	\$0.00
Line Total:							\$0.00
2	158480 LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	D119-796-141 CROSSTUBE	6/16/2017 Yes 6/16/2017		1.00	\$0.00	\$0.00

Note:

6/13/2017

SP17-6B



skyservice Work Order Traveler

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO-53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO32407	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO36567
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT ON 14 CROSSTUBES AS PER PO

6 FWD CROSSTUBES , ITEM ID# D206-667-107BL , WORK ORDERS ID# 161165, 161166, 161167, 161168, 161169, 161170

4 FWD CROSSTUBES , ITEM ID# D119-796-141 , WORK ORDERS ID# 161771, 158480, 158481, 158482

4 FWD CROSSTUBES , ITEM ID# D212-664-101 , WORK ORDERS ID# 159589, 159590, 159591, 159592

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-13 ***NO CRACK FOUND*** PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , EMU. MPO15896, DEV. MPO11715 , UV LIGHT M-20142						JUN 12 2017	 
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

SP176B

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
Name: RAFIK MELIKIAN		JUN 12 2017